leaves is not strongly developed, but nevertheless persists on the lower surface of the mature leaves, especially on the veins. The fruit is abundant and resembles in size that of *V. corymbosum*. In color, however, it is much more variable, ranging from dark-blue with a little bloom to blackish with no bloom, thus showing a very similar variation to that exhibited by the common huckleberry [*Gaylussacia baccata* (Wang.) K. Koch].

Judging from the original description of *V. virgatum* by Aiton (Hort. Kew. **2**: 12) written in 1789, the plant intended to to be named cannot be told with any certainty, but in Watson's Dendrologia Britannica (*pl. 33*) there is a good plate of the plant cultivated in Great Britain under that name — evidently the same species to which the name is applied in America. The extension of its range northward into New Jersey and New York is, of course, not at all surprising when one considers the large number of southern forms with a similar range.

KENNETH K. MACKENZIE.

EAST ORANGE, NEW JERSEY.

REVIEWS

Kraemer's Text-book of Botany and Pharmacognosy*

This book is intended for the use of students of pharmacy, as a handbook for food and drug analysis and as a work of reference. It appears as a second edition of a former work of Professor Kraemer's, published in 1902, even though that had a slightly different title, and the subject-matter has been so changed and extended that it might well be issued as an independent work. The first edition was a small octavo book of less than 400 pages, with 17 plates inserted at the close of the text, and with practically no discussion of botanical theory. The present volume is a larger octavo of over 800 pages, with 321 figures dispersed through the text, and over one fourth of the discussion is devoted to pure botany.

* Kraemer, Henry. A Text-book of Botany and Pharmacognosy. 8vo. vi + 840. *f. 1–321*. Second revised and enlarged edition. J. B. Lippincott Company, Philadelphia and London. 1907. $5.00 *net*.

The first three chapters deal respectively with the great groups of plants (three being recognized, *i. e.*, Thallophytes, Archegoniates and Spermophytes), the outer morphology of Angiospermae, and the inner morphology of higher plants. The selection of the material presented in this portion of the work has been made with care, and we believe that it establishes a standard decidedly in advance of the work that is generally being pursued in the colleges of pharmacy. Certain parts of the discussion will appeal to the botanist as formal and artificial. Such considerations, however, are a necessity to the pharmacist, who is often dealing with the mechanical features and mathematical measurements of plant structures in his analyses. The author has been obliged, perhaps of necessity, to content himself with the presentation of these facts, which are piled up in great detail. It appears to us that certain portions might have been shortened in order to give place to a fuller discussion of the relationship of the great groups of plants, the significance of morphological characters, and the forces operative in shaping them.

Chapter IV., dealing with the classification of angiosperms yielding drugs, and chapter V., on the cultivation of medicinal plants, are entirely new and of very general interest. In the classification of angiosperms the author gives a concise description of the plants yielding drugs and other useful products, as well as the non-official drugs derived from them. This portion of the work will be of service to the botanist and pharmacist alike. The orders and families of the Angiospermae are briefly characterized in the sequence of Engler and Prantl and the various medicinal plants are discussed under their respective families. In many cases no attempt apparently has been made to distinguish between the various orders and families, and probably this is the only practical course where the main consideration is the character of the plant rather than the diagnostic features of the groups, which are, in many cases, at present poorly understood. Much interesting information is presented in the discussion of the cultivation of medicinal plants, attention being called to the growing scarcity of many of the officinal plants and to the opportunity for the profitable cultivation as well as to

the improvement of the drug products by cultural conditions. Approximately 190 species are now cultivated in the United States while 178 species are growing wild, and in addition to this number probably 50 or 75 species from Europe and other countries might be profitably cultivated.

Part II. — Pharmacognosy — dealing with crude drugs and powdered drugs and food, consists of extended and greatly improved presentations of the same subjects as in the older edition. The attention attracted to this part of the work and especially the elaboration of keys for the identification of the crude and powdered drugs has already been noticed in TORREYA. It need only be added that the treatment has been greatly improved by the addition of numerous illustrations, and, in the chapter on drugs and foods, drawings and descriptions of the histological elements and contents of over 200 foods, spices, and drugs are given.

The work closes with a chapter on the various classes of reagents and on the technique involved in sectioning and mounting of specimens. CARLTON C. CURTIS.

Cook's Aspects of Kinetic Evolution*

The method by which the present order of things in the universe has been brought about is a problem whose solution has challenged the philosophically inclined from the time of the early Greeks and earlier to the present day. Among the various hypotheses that have been proposed may be mentioned the following:

I. *Special creation.* God made things; *i. e.*, we do not know how the present order came about. The question is not a proper one for scientific inquiry. (Cuvier, Agassiz.)

II. *Evolution.* The present order came about as the result of a series of gradual changes. The changes by which the present order of living things resulted constitute organic evolution. Theories of organic evolution have been either *static*, regarding the organism as changing only when acted upon from without; or *kinetic*, regarding the organism as changing spontaneously.

* Cook, O. F. Aspects of Kinetic Evolution. Proc. Wash. Acad. Sci. 8 : 197–403. 1907. Washington, D. C. Published by the Academy.